



## MANIFESTATIONS AND OUTCOMES OF TUBERCULOSIS IN THE ENT REGION: A COMPREHENSIVE STUDY OF PRESENTATION, DIAGNOSIS, AND TREATMENT

**Dr Singh Ravi Ramgopal**

Assistant Professor, Department of ENT, Gouri Devi Medical College, Durgapur, West Bengal, India

### ABSTRACT

Extra-pulmonary tuberculosis (EPTB), particularly affecting the ear, nose, and throat (ENT) region, poses a significant concern, especially in regions with a high burden of tuberculosis (TB). This study aims to explore the prevalence, clinical presentations, treatment modalities, and outcomes of TB cases specifically manifesting in the ENT region over a period of two and a half years. The records from our institute's directly observed treatment, short-course (DOTS) center were systematically analyzed, including patient complaints, examination findings, diagnostic features, treatment approaches, and overall outcomes. Among 1875 cases diagnosed with EPTB, 105 presented with ENT manifestations. Predominantly observed in males in their 40s, cervical lymphadenopathy was the most common presentation in 121 cases. Fine needle aspiration cytology facilitated successful diagnosis, and Category I anti-tubercular treatment (AKT) was effective in achieving cure. Cases of TB otitis media with associated facial palsy and tympanic membrane changes were histologically confirmed through surgical intervention, although hearing and facial palsy did not exhibit significant improvement post-AKT completion. TB laryngitis and nasal TB cases responded well to AKT, aligning with findings from previous studies. The study underscores the importance of maintaining a high index of suspicion for diagnosis and highlights the efficacy of Category I AKT, emphasizing that surgical intervention may be warranted in select cases.

**Key words:** Tuberculosis also causes laryngitis, otitis media, and cervical lymphadenopathy besides nasal tuberculosis.

### INTRODUCTION

For centuries, mankind has struggled with tuberculosis (TB). In countries with high disease load like India, despite effective treatment regimens and government support, the disease still takes a huge toll on mortality and morbidity. There is no part of the body that is immune to this disease, even though lung is the most often affected organ. It is not uncommon for TB to manifest itself as nasal TB, otitis media, laryngitis, pharyngitis, and laryngitis in addition to its extrapulmonary manifestations [1]. There is a potential for a delay in diagnosis when atypical organs are affected by tuberculosis, as well as the incorrect treatment if the condition is underdiagnosed. TB patients should be managed with high suspicion by the

medical practitioner, suspected by histopathology, and treated promptly [2].

### Materials and Methods

All TB cases in the ENT region were included in the study. In addition to recording demographic complaints, examination results, investigations, and treatment administration, treatment records are kept. It is necessary to collect, tabulate, and analyze all data.

### RESULTS

The review period covered 1875 cases of tuberculosis at our facility. Extrapulmonary tuberculosis (EPTB) was present in 115 of these 115 people. In 115 EPTB patients, 105 were associated with the ENT region.

Corresponding Author: - **Dr Singh Ravi Ramgopal**

As well as those suffering from laryngitis, tuberculous cervical lymphadenopathy, and TBOM (TBOM), this study included patients with TBOM (TBOM). 71 and 73 were male and female patients, respectively. Table 1 shows that the majority of cases were elderly.

**Tuberculous Lymphadenopathy**

Based on results of the study, 100 EPTB cases had tuberculous cervical lymphadenopathy. Sixty-five women and 136 men took part. The most likely to be affected were those in their fourth decade. Most patients present with neck swelling. Moreover, 7 cases had coughs with sputum, 7 cases had fevers, and 3 cases had sinus discharges. Except for 4 cases, all had multiple lymph nodes. Lymph nodes on both sides were involved in 13 cases. In the majority of cases (88 cases), lymph nodes in the posterior triangle were involved. The mid-third and anterior triangle lymph nodes were also affected. There were 6 cases involving axillary lymph nodes. In every case, FNAC was performed. 96 diagnoses were made as a result of the investigation. It was not possible to make a conclusive diagnosis in 4 cases. An excision biopsy was performed in these cases. During the study, 7 patients were found to have PTB. HIV serological tests were also performed on 1 patients. Under the Revised National Tuberculosis Control Programme (RNTCP), patients received category I antituberculous treatment (AKT). A monthly follow-up was conducted once treatment was completed, if needed. A CD4 count was also considered when prescribing antiretroviral therapy in addition to antiretroviral therapy. By the end of treatment, swelling had subsided in 195 cases. The swelling of one patient increased even though he took all of the prescribed medications. There was no reduction in swelling after

taking the full course of treatment. The nodes were surgically removed in four cases. Neither nodes nor lymph nodes showed signs of tuberculosis.

**Tuberculosis Otitis Media**

As a result of TBOM, there were six reports. In the 21 to 30 age group, 31 to 40 year olds, and 41 to 50 year olds, 186 cases were reported. It was common for all cases to have an ear discharge. It was reported in five cases that the patient had hearing loss; in one case that the patient had ear pain, and in two cases that the patient had facial weakness. Each case had a perforated tympanic membrane. Only one case had multiple perforations. Tympanic membranes were damaged in four cases and polyps were found in one case. Two cases of facial palsy were caused by lower motor neurons. According to a research study, pure conductive signals lose 40 dB in pure tone audiometry. The remaining cases suffered from mixed hearing loss. Each case had a 15.6 dB air-bone gap and a 43.3 dB mean bone conduction threshold. Another case of PTB was revealed by a chest X-ray. There were no exceptions to the tympanoplasty and mastoidectomy procedures. TB was found on polyps and granulations removed during surgery after being histopathologically examined. Category I treatment plans were implemented for the patients.

In addition to routine postoperative care, AKT is recommended. As and when needed after AKT, patients were followed up on a monthly basis. In all cases, sputum tested negative for acid fast bacteria at the last follow-up of all patients. Postoperatively, the mean bone conduction threshold and air-bone gap remained relatively unchanged at 41.2 dB and 21.6 dB, respectively. AKT and surgery did not heal facial nerve palsy.

**Table 1: Age wise distribution**

Condition	0-10		11-20		21-30		31-40		41-50		51-60		61-70		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Cervical lymphadenopathy	1	0	6	3	15	7	28	12	15	8	3	3	0	0	101
TB otitis media	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
Laryngeal TB	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Nasal TB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1		9		22		42		23		6		1		104

**Tuberculous Laryngitis**

There have been three reports of tuberculous laryngitis. Each of these cases also had PTB. They were all over 50-year-old males. As complaints, hoarseness, coughing, and fever were reported. Two cases developed hoarseness after coughing with expectoration for one to three months. The two complaints developed simultaneously in one case. Sputum samples were positive in all cases of AFB. An HIV-positive patient was

discovered. The direct laryngoscopy excluded malignancies. All of the cases had congested laryngeal mucosa. Because of polypoidal mucosa over the laryngeal parts, it was removed as much as possible. There was no paralysis or massing of the vocal cords. Tuberculosis is the cause of the stripped material, according to its histopathology. RNTCP has initiated Category I AKT in accordance with its guidelines. In the weeks following the treatment, the patient's condition remained unchanged.

Although some patients had successful treatment, they remained hoarse.

### **Nasal Tuberculosis**

During the review period, one case of nasal tuberculosis was reported. As a result of her three-month experience with right nasal obstruction, our investigation revealed she had this obstruction on the right side of her nose. In the right nasal cavity, a pale polypoidal mass was present. Deformities of the external nose were not apparent. According to computerized tomography, a mass was detected in the anterior paranasal sinus and in the nasal cavity. An endoscopic sinus surgery was performed in this case. HPE indicated TB after piecemeal removal of the polypoidal mass. AKT type I has been administered to the patient for the past five months.

### **DISCUSSION**

During the study period, 1875 TB cases were reviewed, and 115 cases of EPTB were observed. There have been reports of EPTB incidence ranging from 15 to 40% in the literature [2–5]. This disease load is characterized by PTB as its most prevalent manifestation. Our study group had a higher percentage of male subjects (72/100) compared with previous studies [6, 7] and other research groups. Although low disease loads were observed in these studies, it is important to note that they were conducted in developed countries with low levels of disease. It is evident that Indian studies are dominated by males. Among those in their fourth decade of life, 38.4% reach a peak. A study reported the same distribution [1, 6]. The relationship between PTB and EPTB is usually not reported. In the present study, we found that 9% of cases had active PTB as well. EPTB cases are estimated to exhibit symptoms associated with the ENT only in 5 percent of cases. It was surprising to find most EPTB cases (91.7%) in ENT areas. Lymphadenitis of the cervical region is a common symptom of EPTB [2, 4, 6–8]. There were also 87.4% and 95.3% of cases of cervical TB lymphadenitis in ENT offices for cases with ETPTB and EPTB. Multiple lymph nodes were involved in 96.5% of cases, and the posterior triangles were involved in 88% of cases. Similar results have been reported in other studies [7]. A FNAC confirmation was obtained in 96.5% of the cases in this study. Surgical excision biopsy confirmed the diagnosis in eight cases. The TB diagnosis rate is hampered by the lack of bacteria in other tissues besides sputum [6]. PTB patients who were HIV positive made up 1% of the patient population. The incidence of multiple sites of involvement is higher in HIV positive patients. HIV positivity has been reported to occur around 8% of the time in patients with TB lymphadenitis. All studies have demonstrated that AKT is very effective in treating TB

lymphadenopathy [7]. Surgery, however, has a limited role in certain situations [9]. A rare manifestation of TB is TBOM [10]. According to the study, 0.1 % of all TB cases and 1.7 % of EPTB cases were attributed to it. There is a wide range of ear findings and different types and severity of hearing loss reported in various studies regarding TBOM, despite the classical description of multiple tympanic membrane perforations in patients with painless ear discharge and disproportionate sensor neural hearing loss [10–13]. Perforations, granulations, and polyps were also found in the present study. There was only one case of the classical multiple perforations. In our study, one case (25 %) of TBOM was associated with PTB. There has been some evidence that facial palsy occurs in approximately 35 percent of patients with TBOM [12], and recovery has been variable, even following successful treatment. Half of the patients who underwent surgery did not recover. HPE of diseased ear tissue is the most reliable method of diagnosing TBOM. The detection rate for AFB can reach 50% with repeated tests [11–14]. Both AKT and TBOM can effectively cure this disease. We also successfully treated all of our category I cases with AKT. The hearing did not improve significantly despite this. There are other studies that report similar results [10, 12].

Laryngeal TB is characterized by dysphonia and pain. While our patients complained of hoarseness, pain was not their main complaint. Each of our patients had a case of PTB as well. It has been shown in the literature that one percent of PTB patients will also develop LTB, and 100 percent of LTB patients will also develop PTB [15]. Since HIV cases have increased in recent years, LTB appears to have resurged [15, 16, 17]. In our study, 33.3% of the cases were also detected. In addition to diagnosing and confirming malignancy, direct laryngoscopy can also collect HPE tissue. Besides the patient features (smoking and dysphonia) and the presenting complaints (dysphonia and pain), laryngeal TB may have a histology that mimics carcinoma due to epithelial hyperplasia. It should be noted that, although fibrotic healing can alleviate hoarseness, it can also result in voice impairment in the long term. The AKT procedure has proven to be effective when scarring is present, but it may be necessary when airway compromise or active disease exists.

### **CONCLUSION**

Developing countries like India with a high disease burden are plagued by extrapulmonary tuberculosis. ENT is the most common region to encounter extrapulmonary TB. A high index of suspicion is required for these cases, as well as accurate tissue diagnosis. AKT of category I is beneficial in most cases. Surgical intervention may be needed in some cases.

**REFERENCE:**

1. De Sousa RT, Briglia MFS, de Lima LCN, de Carvalho RS, Teixeira ML, Marcia AHR, *et al* Frequency of Otorhinolaryngologies' manifestations in patients with pulmonary tuberculosis. *Int Arch Otorhinolaryngol* 14(2), 2010, 156–162
2. Mazza-Stalder J, Nicod L, Janssens JP, *et al*. Extrapulmonary tuberculosis. *Rev Mal Respir* 29(4), 2012, 566–578
3. Le Roux P, Quinque K, Bonnel AS, Le Luyer B, *et al*. Extra-pulmonary tuberculosis in childhood. *Arch Pediatr*. 12(2), 2005, S122–S126
4. Stelianides S, Belmatoug N, Fantin B, *et al*. Manifestations and diagnosis of extrapulmonary tuberculosis. *Rev Mal Respir* 14(5), 1997, S72–S87
5. Hup AK, Haitjema T, de Kuijper G, *et al*. Primary nasal tuberculosis. *Rhinology* 39, 2001, 47–48
6. Chakravorty S, Sen MK, Tyagi JS, *et al*. Diagnosis of extra-pulmonary tuberculosis by smear, culture, and PCR using universal sample processing technology. *J Clin Microbiol* 43(9), 2005, 4357–4362
7. Bayazit YA, Bayazit N, Namiduru M, *et al*. Mycobacterial cervical lymphadenitis. *ORL J Otorhinolaryngol Relat Spec* 66(5), 2004, 275–280
8. Pinho MM, Ko's AOA, *et al*. Otite Me'dia Tuberculosa, Artigo de Revisão. *Rev Bras Otorrinol* 68(5), 2003, 829–837
9. Mohan A, Reddy KM, Phaneendra BV, Chandra A. *et al*. Aetiology of peripheral lymphadenopathy in adults: analysis of 1724 cases seen at a tertiary care teaching hospital in southern India. *Natl Med J India* 20(2), 2007, 78–80
10. Abes GT, Abes FL, Jamir JC, *et al*. The variable clinical presentation of tuberculosis otitis media and the importance of early detection. *Otol Neurotol* 32(4), 2011, 539–543
11. Yaniv E. Tuberculous otitis: an underdiagnosed disease. *Am J Otolaryngol* 8(6), 1987, 356–360
12. Adhikari P. Tuberculous otitis media: a review of literature. *Internet J Otorhinolaryngol* 9(1), 2009, 7.
13. Yaniv E, Traub P, Conradie R, *et al*. Middle ear tuberculosis—a series of 24 patients. *Int J Pediatr Otorhinolaryngol* 12(1), 1986, 59–63
14. Kirsch CM, Wehner JH, Jensen WA, Kagawa FT, Campagna AC, *et al*. Tuberculous otitis media. *South Med J* 88(3), 1995, 363–366
15. Yench MW, Linfesty R, Blackmon A, *et al*. Laryngeal tuberculosis. *Am J Otolaryngol* 21(2), 2000, 122–126
16. Essaadi M, Raji A, Detsouli M, Mokrim B, Kadiri F, Laraqui NZ, *et al*. Laryngeal tuberculosis: apropos of 15 cases. *Rev Laryngol Otol Rhinol (Bord)* 122(2), 2001, 125–128
17. Levenson MJ, Ingerman M, Grimes C, Robbett WF, *et al*. Laryngeal tuberculosis: review of twenty cases. *Laryngoscope* 94(8), 1984, 1094–1097.